Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY FACILITIES DEPARTMENT NEWSLETTER

OCTOBER
1997

DNA FACTORY LOCATES IN WALNUT CREEK

Construction design and initial site work are now in progress for the Joint Genome Institute (JGI) Production Sequencing Facility, to be located in Walnut Creek's Shadelands Business Park. The facility will occupy two leased, single-story buildings totaling over 5,800 square meters, and will be dedicated to high-throughput automated DNA sequencing. Work on the buildings, designated Building 100 and Building 400, will be phased, with Building 400 lagging nine months behind Building 100.

The JGI was established by DOE to consolidate the Berkeley Lab, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory human genome projects. The Production Sequencing Facility will bring all three research efforts under one roof—or pair of roofs—for the purpose of developing, within two years, an automated DNA sequencing production line that can achieve DOE's goal of mapping 40 percent of the human genome by 2005.

For the past several months, Facilities has been assisting JGI in the site selection process. The Walnut Creek site prevailed over about 30 potential sites in the East Bay. Set among mature trees not far from downtown Walnut Creek, the former Dow Chemical Research facility promises to be an attractive workplace for its 200-plus employees.

The Facilities project team, led by project manager Kirk Haley, has also been working with JGI to define its programmatic space needs—a moving target given the pace of change in DNA sequencing technology. Haley credits the Architectural Group's John Musante with successfully combining the differing research approaches of the three JGI participants into a single plan. "John did an amazing job in programming the needs of the three different laboratories into shared spaces," says Haley. "He's come up with a clever layout that takes advantage of existing conditions."

The Walnut Creek facility was constructed in the 1970s. The planned renovations must introduce enough flexibility so that laboratory spaces can be easily reconfigured as new technology and process improvements come along.

"One of the form-givers is the shear-wall construction of the buildings," says Musante. The existing laboratories are separated from one another by structural masonry shear walls. At 600 square feet each, these labs are too small to meet JGI's programmatic requirement for lab spaces of at least 1200 square feet. Musante plans to remove alternating shear walls to create labs of at least 1200 square feet, then restore the lost structural strength by replacing some existing walls with braced-steel frame walls.

Modular demountable walls will replace some perimeter laboratory walls so that the laboratories

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HUMAN GENOME LAB NEARS COMPLETION

Commissioning of the Human Genome Laboratory begins in the first week of October. *See Page 5 .*

INSIDE

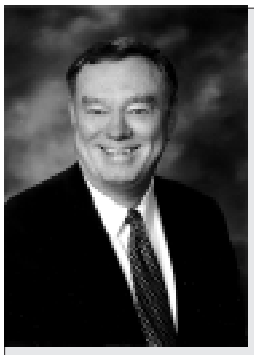
JOHN PICKRELL RETIRES

The Project Management Group's John Pickrell is retiring after 21 years of service at the Lab.

John came to the Laboratory in 1976 as a construction engineer. Over the years, he has handled "some kind of project in almost every building on the hill." He was construction manager for conventional facilities during construction of the Advanced Light Source from 1988 to 1993. Since then, John has managed the Hazardous Waste Handling Facility site preparation and the recently completed East Canyon Electrical Safety Project.

John served in the Naval Reserve for 30years, r etiring in 1991 as a captain in the Civil Engineer Corps.

Since leaving the Lab on September 5, John has been making good use of some of his accumulated vacation time, moose hunting in Canada. He and his wife, Wilma, will be doing some deer hunting and fishing in California and, yes, Wilma does hunt and fish. Their long-term plans include volunteer work with a number of Christian mission organizations and spending time with the grandchildren.



FROM THE FACILITIES MANAGER...

As we enter fiscal year 1998, it is important that we not ease up on safety as the work eases up from the year-end rush. The Behavior Based Accident Prevention Program has shown positive results, and it is up to each of us to make that continue. Each employee must make safety his or her number one priority.

Congratulations are again in order. This year we have won three Federal Energy Management awards and one DOE energy award. The Federal awards are for HVAC Energy Efficient Retrofits, Lighting Energy Efficiency Retrofit, and authoring FEMP guidelines. The DOE Mobility Energy Efficiency Awards are for the shuttle bus operation and other fuel-saving programs. A job well done by a lot of people.

Building 84, the Human Genome Laboratory, is nearing beneficial occupancy. The project has gone exceptionally well, for which we can thank the project manager, Sheree Siemiatkoski. We also must thank Jan Cook of LLNL for lending Sheree to us for the project. On a similar note, the Production Sequencing Facility, to be located in Walnut Creek, is proceeding on schedule through design of the tenant improvements.

Two retirements have been announced. John Pickrell will retire October 8th and Fred Lothrop on December 30th. Both will be missed, as will Rich Scudero, who is also leaving the Lab. Joining Facilities is the NEPA/CEQA Coordinator; we are interviewing and hope to have the position filled by early November. The coordinator will be in Facilities Planning, with an office in 90B.

Now, all together...

Work SMART — Work SAFELY — If it is not safe, STOP.

Bob Camper

DNA

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can expand into adjacent space. An overhead grid will carry all utilities, so that they can be dropped down wherever needed in the laboratories. For easy modification in the future, all laboratories will be served by the full set of utilities—air, deionized water, gas, data, and electrical. Where practical, lab benches will be modular and movable.

The Facilities team is now developing the plant specifications and design criteria, from which the landlord's design team will create a complete set of design and construction documents for the building shell. The landlord's contractor is preparing the cost estimate in parallel with the design effort to prevent any cost surprises. Facilities is responsible for outfitting the building with fume hoods, deionized

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STORES DISCONTINUES SOME STOCK ITEMS

Stores announces the removal of about 200 items from its catalog. A list of these items is available on the web at: http://www.lbl.gov/~miller/stores/. Please call George Towns at x5020 if you have questions or comments.

FACILITIES DEPARTMENT

Facilities provides Berkeley Lab with a full range of architectural and engineering, construction, and maintenance services for new facilities and for modification and support of existing facilities.

Architectural and engineering services include facility planning, programming, design, engineering, project management, and construction management. Maintenance and construction functions include custodial, gardening, and lighting services; operation, service, and repair or replacement of equipment and utility systems; and construction of modifications, alterations, and additions to buildings, equipment, facilities, and utilities. Additional services include bus and fleet management, mail distribution, stores distribution, and property disposal.

Ongoing Facilities activities include renewal and upgrade of site utility systems and building equipment; preparation of environmental planning studies; in-house energy management; space planning; and assurance of Laboratory compliance with appropriate facilities-related regulations and with University and DOE policies and procedures.

The Work Request Center expedites facility-related work requests, answers questions, and provides support for facility-related needs.

FOCUS ON SERVICE: ESTIMATING

"Any Facilities organization must be able to anticipate and evaluate project costs," says senior estimator Mark Saran. To show what that entails, he opens a weighty volume of R. S. Means, the "cookbook" of construction estimating. Means quantifies effort in man-hours for nearly any construction task, from installing an HVAC system (thousands of hours) to screwing on a single wire nut (0.02 hours).

Estimates prepared at Berkeley Lab adhere to Means and other construction industry standards. Work is broken down by Construction Specifications Institute (CSI) "divisions"—a set of 16 categories that span the full range of construction activities, from site preparation to finish work—and is compiled using R. S. Means or a comparable system. "All our estimators can estimate all 16 CSI divisions," says chief estimator John Eastman. "It's tough to find people who can do that."

But there is more to estimating than following a recipe. Equally important is the knowledge-base that Facilities estimators have acquired in scrutinizing hundreds of projects at Berkeley Lab. As Eastman explains, "Our estimates need to take special conditions at the Lab into account—alarm systems, radiation and hazardous material areas, ventilation systems, backup cooling and power systems, safety structures such as blowout walls, and so on." And safety always comes first. "We play by the rules on health and safety concerns such as asbestos, lead paint, and live electrical circuits," says Eastman. "We are especially keen on safety."

To minimize the impact on research,

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COMPLIMENTS

In a letter to Director Shank, Director Lyle H. Schwartz of Brookhaven National Laboratory writes, "I would like to express my personal gratitude and that of Brookhaven National Laboratory for the participation of your staff in our Facility Review. Your team, Richard Scudero and Fred Angliss, contributed to an enormous undertaking with significant time restraints. Their contributions have helped us assure both the thoroughness and quality of this effort."

Congratulations to the recipients of a 1997 DOE Mobility Energy Award: Tammy Brown, Carma Hamer, Fred Lothrop, Rich McClure, and Patrick Thorson; and to the following Federal Energy Management Award winners: Geoffrey Bell, Steve Greenberg, Dennis Kincy, Doug Lockhart, Rachel McGee, Chuck Taberski (two awards), Bela Torkos, Marshall Hilburn, Mack Morgan, Tai Voong, Matthew Wilson, Steve Kromer, Doug Dahl (NREL), and Steve Schiller (Schiller Associates).

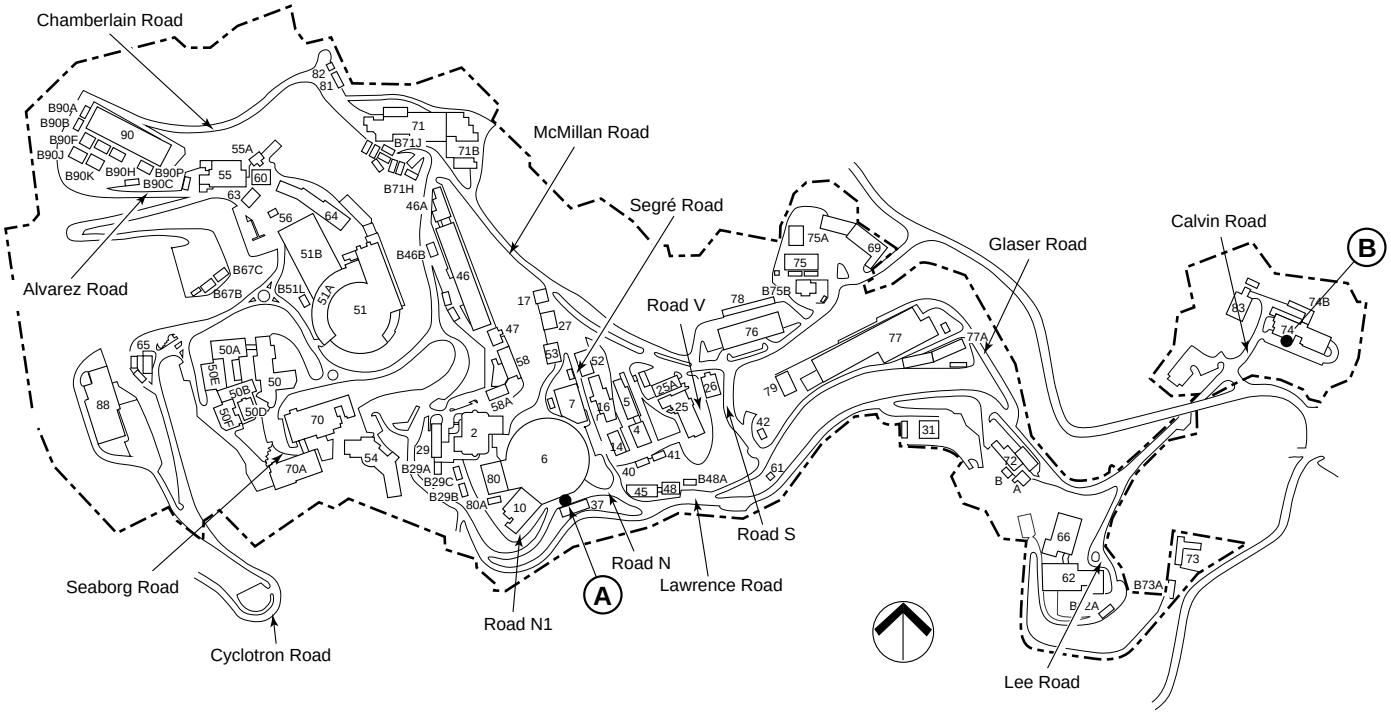
WORK REQUEST CENTER

Telephone	6274
Fax	7805
Quickmail	Facility
E- or VAX-Mail	Facilities@lbl.gov
cc:Mail	LBL Facilities
Mailstop	76-222

WRC welcomes questions or comments about the Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

Bldg 6 Second Floor Conversion

(A)

OCT	NOV	DEC

Construction is scheduled to begin in October. Parking spaces on the south side of Bldg 6 will be reserved for the contractor. (Richard Stanton, x6221)

Bldg 84 Human Genome Laboratory

OCT	NOV	DEC

(B)

Construction trailers and activities in this area will continue to impact local parking through the summer. Intermittent interruptions to vehicular access will occur through this period. (Sheree Siemiatkoski, x6088)

"CAUTION—CONSTRUCTION AREA"

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Please contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Bldg 74 Rehabilitation of Building Systems

A conceptual design report has been prepared for the rehabilitation of Building 74 mechanical and electrical systems, seismic upgrade of the structure, and code upgrade of architectural features. As part of the project, the Building 84 utility center would be expanded to accommodate Building 74 utilities, including relocated mechanical equipment and new electrical switchgear. If this project is funded, project design will begin in FY 1999. (Richard Stanton, x6221)

Bldg 77 Rehabilitation Project

Conceptual design is complete for this project, which will rehabilitate Building 77's structural system to restore lateral force resistance and arrest differential foundation settlement. In addition, the project will modernize the building's architectural, mechanical, and electrical systems. (Pablo Orozco, x5820)

IN PROGRESS

funded projects

Bldg 84 Human Genome Laboratory

Construction is nearly complete for this 3800-square-meter, state-of-the-art genetics research laboratory. Final testing and balancing of building systems will be completed in early October. The general contractor expects to finish punchlist items in October. Commissioning begins the first week in October. Congratulations on a job well done go to the Facilities project team: Sheree Siemiatkoski, Project Manager; Saptarshi Desai, Construction Coordinator; Don Beaton, Construction Coordinator; Donna Brown, Project Administrator; Rick Leicher, Estimator; Danica Truchlikova, Architect; Kathie Milano, Architect; Bob Shilling, Structural / Civil Design; Michael Dong, Mechanical Design; Larry Domansky, Electrical Design; Geoffrey Bell, IHEM Design; Paul Blodgett, EH&S; Tony Yuen, Fire Protection Engineer; Loretta Valentine, Safety Inspector; Danny Fernandez, Construction Inspector; and Willy Lopez, Chief Construction Inspector. (Sheree Siemiatkoski, x6088)

Bldg 2 Lithography Laboratory Conversion

This project will provide 25 square meters of class 100 clean room space in the first-floor lithography laboratory in Building 2. The project includes lab utilities, ventilation, modifications to support spaces and building systems, a make-up air handling unit, and additional chilled water lines for clean room temperature and humidity control. Construction is tentatively scheduled to begin in January 1998. (Pablo Orozco, x5820)

Bldg 6 Second Floor Conversion

Design is complete for conversion of additional space on the second floor of the ALS for offices, laboratories, and a conference room. The work includes an elevator at the main entrance. Construction is expected to begin in October 1997. (Richard Stanton, x6221)

Bldg 34 Chilled Water Plant

Design is under way for expansion of the Building 34 chilled water plant. This project will install an additional cooling tower and chiller serving the ALS. The original construction of this building provided space for this expansion. Design is expected to be complete in October. (Pablo Orozco, x5820)

Bldg 51 Office Conversion

This project will convert approximately 300 square meters on the first floor of Bldg 51 to office use. The space, which was previously a machine shop and control room for the now-decommissioned Bevatron, will be gutted. New heating and ventilation systems, ceilings, lights, and flooring will be installed to provide office space for about 20 people. (Richard Stanton, x6221)

Bldg 54 Conference Center Improvements

Design is under way for a new deck to be constructed on the south and west sides of the conference center. The deck will be accessible from both the large and small conference rooms. (Richard Stanton, x6221)

DNA FACTORY

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water systems, lab benches, lab utilities, and office furniture.

Construction of the improvements to Building 100 is expected to be complete by November, with occupancy by JGI in April 1998.

ESTIMATING

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projects may include provisions for working at night, controlling dust generation, or avoiding certain construction methods. Pile-driving, for instance, is not permitted, because the noise and vibration can affect sensitive scientific instruments.

In thinking through the construction process for a particular job, the estimator must be able to identify and add in associated tasks, details that don't appear on the project drawings, and code requirements. For example, repairing a leaky water pipe buried under a road would be easy if it didn't also involve traffic control, saw-cutting of the pavement, excavating to the required depth, shoring the trench, use of proper safety procedures while working in the trench, removing the shoring, backfilling, soil compaction, and repaving.

Planner/estimators Martin Dooly, Paul Wilson, and Paul Morton are responsible for estimates for inhouse work. Upon receipt of a work request, the estimator visits the work site, studies the drawings, may interview the requester to establish project requirements, and identifies hazards that have mitigation costs. The completed estimate and a cover sheet giving the total price are faxed to the requester for approval. Upon return of the signed cover sheet, the estimator issues a job order. Each relevant Facilities craft, as well as the project manager and superintendent, gets a work package containing the job order, drawings, specs, and hazard analysis.

Future home of the Production Sequencing Facility

The outside architect/engineers (A/Es) and contractors who carry out most of the Lab's larger construction projects do their own estimates, but also benefit from the Facilities estimators' familiarity with the Lab. Mark Saran and Rick Leicher provide quality assurance and other services for these projects, estimating cost at every stage of design.

When the outside A/E has delivered a detailed design and estimate for a funded project, Saran carefully reviews the estimate against his own cost analysis, ensuring that the A/E's estimate is both reasonable and complete.

During the construction phase, the contractor prepares change orders to cover additional work. Rick Leicher evaluates the change orders, preparing a separate estimate that may be substantially lower if he finds cost savings. Leicher then negotiates with the contractor to resolve differences. On large projects, it is also his job to keep track of a large number of change orders.

In addition to monitoring funded projects, Saran provides support during the conceptual design phase, working with the design team and client to prepare an initial estimate and evaluate project alternatives, such as siting options. Similar services are available for small projects, and are useful in establishing feasibility and defining project scope. "Estimating is really important for budgeting purposes," says Eastman. "We do estimates for most large projects, as well as small projects where funding is an issue. Most clients want an estimate before they commit to a project where a funding decision must be made."

Estimates may be obtained through the Work Request Center. Eastman personally screens all projects, assigning about 65 a month to his estimating staff. Achieving a fast turnaround is a high priority. "We try to hit five days," says Eastman, "but on small jobs we do much better than that."

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